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ABSTRACT

This publication examines 10 educational trends that should be considered in the planning, design, and modernization ofschools. The trends were identified by reviewing research on the relationship of school facilities to student outcomes; by performing a general environmental scan of current trends, issues, problems, andinitiatives in education; and by reviewing demographic patterns emerging out of the 2000 U.S. Census. The trends are: (1) the lines of prescribed attendance areas will blur; (2) schools will be smaller and more neighborhood oriented; (3) there will be fewer students per class; (4) technology will dominate instructional delivery; (5) the typical spaces thought to constitute a school may change; (6) students and teachers will be organized differently; (7) students will spend more time in school; (8) instructional materials will evolve; (9) grade configurations will change; and (10) schools will disappear by the end of the 21st century (or will they?). (Contains 14 references.) (EV)

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# Ten Educational Trends Shaping School Planning and Design

National Clearinghouse for Educational Facilities

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Schools are expensive and last a long time. When we build new schools or modernize existing ones, it is important to consider the trends that are changing how we think about and deliver public education. Although no one can predict the future, we have an obligation to identify evolving attitudes and practices and to try our best to understand how they might affect the physical settings we use for learning. This publication examines ten educational trends that should be considered in the planning, design, and modernization of schools. The trends were identified by reviewing research on the relationship of school facilities to student outcomes, by performing a general environmental scan of current trends, issues, problems, and initiatives in education, and by reviewing demographic patterns emerging out of the 2000 U. S. Census.

## *Trend One*

### The Lines of Prescribed Attendance Areas Will Blur

Because public education has been the only choice for most children, planning for school enrollment has been relatively easy during the past fifty years. Based on the premise that schools have fixed geographic boundaries, planners used demographics to determine the number of students residing within each boundary. But that premise has changed dramatically in the era of education reform, sweeping new education legislation, and increased school accountability. Parents and policy makers around the country unhappy with public education have attempted to break what they perceive as its monopoly on delivering K–12 education and have pushed for and won vouchers, tax credits, or other mechanisms that let parents choose alternatives to their local public school.

At the same time, public school systems themselves, in response to criticisms regarding the lack of choice among public schools, have begun to move away from the concept that states, "If you live on this street, you go to this school." Now districts are offering parents a variety of options—everything from magnet schools to charter schools. More and more, school systems are embracing the concept that parents and their children should have some choice about the school a child attends. For example, at least thirty-eight states now offer parents and communities the option of chartering a school. In the 2001–2002 school year, there were about 2,400 charter schools operating across the country (Nathan 2001).

What problem has this movement from prescribed attendance zones to various school choices created for school planning? Great uncertainty. Uncertainty regarding how many students will actually attend a particular school. Uncertainty as to what facilities the school needs. A magnet school for the arts, for instance, and one with a technology focus may require distinctly different facilities.

The one-size-fits-all approach is disappearing. A growing number of educators and policy makers are realizing that "identical" schools in terms of facilities do not equate to equal opportunity for students. It is becoming more and more apparent that students function best in different environments according to their talents, abilities, and needs. Thus, the focus is shifting away from developing district-wide plans that provide equality of facilities toward plans that meet the unique program needs of each school. A good facilities plan in the past provided all schools with about the same features, and fairness was judged that way. If School A had two gyms, then the plan needed to make sure that School B had two gyms. But today the trend is moving away from *equality* toward the idea that good facilities planning and implementation produces *equity*, with equity meaning that schools receive the facilities required to support their unique programs and help recruit and retain the programs' intended audience.

EF 006 198

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## Trend Two

**Schools Will Be Smaller and More Neighborhood Oriented**

The educational literature abounds with articles touting the virtues of small neighborhood schools (Cotton 2001; Raywid 1998; Vander Ark 2002). In Florida, for example, policy makers have mandated much smaller maximum school sizes than typical of today's schools. It is not inconceivable that within the next twenty-five years, we will see elementary schools housing an average of 200 students, middle schools with no more than 400 to 500 students, and high schools averaging 500 to 750 students. Advocates for smaller schools cite as evidence for their position the growing body of research indicating that such schools are better at improving the academic achievement of students who have not been successful in traditional settings, bringing about increased graduation rates, obtaining greater student involvement in school co-curricular activities, and helping to overcome challenging student behavioral situations. Parents believe that teachers and administrators in small schools know individual students better, that students have more opportunities to participate in organized activities, and that those attending smaller schools are safer.

However, the extent to which this trend toward smaller schools will continue is dependent on at least two factors. First, the scientific evidence is mixed as to whether smaller or larger schools produce better academic results. More and better research is needed in this area to guide decision-making regarding school size. Second, even if smaller schools are found to produce more positive academic outcomes, many argue that the cost of moving to smaller schools is too great, despite the benefits. They indicate that, with an aging population in most communities and states, citizens' unwillingness to raise their own taxes in order to build more educational facilities may dramatically and negatively impact the small schools movement. Others argue that cost is not necessarily a negative factor when considering instituting smaller schools. They even suggest that if cost is measured based on graduation rates, small schools are at least no more costly to operate than large ones. In any event, planners need to discuss optimum school size with any district that is developing a long-range facilities program.

## Trend Three

**There Will Be Fewer Students Per Class**

The current interest in reducing class size will remain high for the foreseeable future (Biddle 2002). Results from research such as the STAR (Student-Teacher Achievement Ratio) Project, which was authorized by the Tennessee legislature in 1985, continue to drive down teacher-pupil ratios (Achilles 1996). South Carolina's state funding formula, for example, recently has been changed to provide for a teacher-pupil ratio of eighteen to one (18:1) for grades one through three, and there is a strong push to reduce this ratio further. This is typical of activities across the nation, with some states, such as California, mandating immediate and comprehensive across-the-board reductions in class size (Bohrnstedt 2002).

We may see the national average teacher-pupil ratio approach twelve to one (12:1) within a decade, at least in the elementary grades. This reduction in class size will not only require more teachers but will decrease the student capacity of buildings. Consequently, schools that now have sufficient space to house their student populations may find themselves with too few classrooms, even if the total number of students they serve remains unchanged. Schools will need to address the growing need for more classrooms as teacher-pupil ratios decline.

## Trend Four

**Technology Will Dominate Instructional Delivery**

Because schools will be more neighborhood-oriented and, thereby, more numerous, and because teacher-pupil ratios will be reduced, educational costs will grow. But the aging voter base will be more reluctant to support such increases, so school districts will have to look for ways to control education costs. One way will be through distance education (Clark 2001). Students wanting more specialized or advanced courses will be able to take them through closed-circuit television or the Internet. Because these are "packaged" resources, the district can reduce the number and, thereby, the cost of personnel required to provide them.

Another approach to control cost will be to deliver basic educational programs within the school itself through computers, networks, and software. For example, instead of four teachers delivering instruction to one

students in schools of the future may be assigned to a particular classroom because its design best supports how those students learn. Schools built this way may have very different kinds of classrooms on the same hallway.

Another possibility is that entire schools will be designed for students with particular learning styles. For example, students who are visual learners would attend a school specifically designed to support this learning style. Students who are kinesthetic learners would attend a school designed to allow them to learn through activity and movement. Regardless of which of these possibilities emerges, the critical point for planners is that the one-size-fits-all classroom model is disappearing.

## Trend Seven

**Students Will Spend More Time in School**

The amount of time spent in school will continue to expand. In an attempt to meet the demands that policy makers and society place on education, the school day will lengthen and the school year will grow to approach 240 days from its present average of approximately 180 days (Lackney 1999). When the buildings are not used for traditional school functions, they will be serving the greater community, often during evenings and weekends. Since school buildings will receive far greater use, their materials and equipment will need to be more durable and easily maintained or replaced. There will be no extended periods for making repairs, as summers typically are used for now. Because schools will operate nearly full time, utility costs will increase, heightening the emphasis on energy efficiency and life-cycle costing.

## Trend Eight

**Instructional Materials Will Evolve**

Paper as we know it may largely disappear from the classroom. Many reference materials, including journals and magazines, will be available in digital form on CDs and DVDs or via the Internet (Simon 2001). As a result, such things as the adequacy of electrical service, the number of Internet connections, type and configuration of local and wide area computer networks, and the size and design of spaces, such as the school library, will be more important than ever.

As important, the use of computer resources will affect the visual, thermal, acoustical, and physical environment of the classroom. Controlling glare that may interfere with the viewing of computer screens, installing sufficient cooling to overcome the heat produced by electronic equipment, and providing adequate sound treatment to control machine noise and allow unfettered aural communications will be critical to providing an adequate learning environment.

## Trend Nine

**Grade Configurations Will Change**

Schools of the future will be designed to accommodate emerging findings about when and where students learn best. For example, there is substantial research indicating that each transition or school change a student makes has a negative effect on learning (Renchler 2000). To offset this, some school districts are seeking to reduce such changes by adjusting grade configurations. The K-8 school is staging a comeback, and some districts are seriously considering a return to a K–12 school, with all grades under one roof. Revisiting the K–12 concept is one part of the idea of a neighborhood school where students can go to the same school near their home from kindergarten through high-school graduation.

Some school systems are moving in the opposite direction. While K–5 or K–6 has been the standard elementary pattern for years, more school systems are splitting this configuration to create primary and intermediate schools. The entire faculty of a primary school, for example, would be focused on educational techniques supportive of early childhood education.

In any event, it is likely that traditional grade groupings will be reconsidered in many places, requiring reconfigurations of the size, shape, and location of school buildings.

hundred fourth-grade students, the future school may have one master teacher and a team of assistants who will deliver much of the instruction as prescribed by the master teacher. This might involve direct interaction between students and assistants or it might involve the assistants helping students use a software program specifically designed to further education in a particular subject.

In effect, the master teacher in this scenario is like a doctor, diagnosing and determining treatment but assigning all but the most complex educational intervention procedures to others to carry out. Though this type of approach has been discussed in the literature for many years, today's advances in technology make the likelihood of such a reorganization of the instructional model not only possible, but probable. If such a scenario does come about, the concept of a school building may have to undergo substantial rethinking.

## *Trend Five*

**The Typical Spaces Thought to Constitute a School May Change**

Very different scenarios may affect what spaces school districts will include in future building designs (Butin 2000). One view of the future suggests teaching will become more basic, citing the current emphasis on school accountability as measured by test scores. This scenario maintains that as schools become increasingly focused on producing good scores on standardized achievement tests, their curriculums will change. Schools will require students having academic difficulties to take specific additional courses in their problem areas. Rather than taking art as an elective, for example, a student may be required to take a second course in math to bolster performance on required state or national tests. Students who are already doing well in math or science may be encouraged to take additional courses in these subjects instead of non-academic electives. As schools under this scenario focus more and more on traditional "academic" subjects, demand for music and art courses, vocational courses, and even physical education courses may diminish. If this becomes a reality, it is possible to picture at least some schools in the future being very basic, composed primarily of standard academic classrooms with few spaces for "non-essential" subjects.

Some see the future very differently, however. In a second scenario, standard academic classrooms largely disappear. In their place, specialized labs and learning centers become the norm (Lackney 1999). Those with this vision maintain that separating learning into academics, arts, vocational, and the like is a false dichotomy (Chan 1996). Instead, they view learning as holistic with, for example, art incorporated into language arts or math taught with specific job skills or vocations in mind. In this scenario, classrooms must be multipurpose, allowing a blending of traditional instruction with meaningful and diverse hands-on, lab-type experiences that may include anything from pottery making to dramatic arts.

A third scenario sees the development of more shared school facilities. In this view, future schools will be created or redesigned so that instructional and support spaces can also be used by social and community organizations or even businesses. A classroom used during the day for high-school keyboarding may house a computer technology course in the evening that a local business wishes to offer its employees. Or, students may find themselves sharing their library with community retirees researching their genealogy through the school's Internet connection. Adults in the neighborhood may drop by the school health room for a blood pressure check with the school nurse. In any event, sharing instructional and support facilities is expected to be beneficial to both the school and the community. In such a setting, students have access to a wide array of community and business expertise that can bring the curriculum to life—and those who do not normally have access to school facilities find that the facilities better justify the tax dollars spent upon them.

In any of the three scenarios, school facilities would be different from what exists today. The key to successful planning is to provide the most flexible and adaptable spaces possible in our schools.

## *Trend Six*

**Students and Teachers Will Be Organized Differently**

Students have traditionally been placed in a classroom as much to create a balance of class size for teachers as anything else. But students are increasingly being grouped by learning and teaching styles. This trend toward matching instruction to learning styles may affect facilities design in two different ways. On the one hand,

## *Trend Ten*

**Schools Will Disappear Before the End of the 21st Century (Or Will They?)**

The previous trends suggest how school facilities may be different in the future. Though the possibility may be remote, another scenario exists—schools, as we know them, will disappear (Northwest Educational Technology Consortium 2002). The idea sounds fantastic at first, but if one thinks about the combination of the rapid development of technology and the increasing lack of confidence parents have in public education, the disappearance of the brick and mortar structure called school is possible.

One can envision a child rising in the morning and entering a special space at home that functions as a virtual classroom. Everything from the teacher to fellow students is created and controlled by technology. The child has access to lessons prepared by the most knowledgeable professionals in the world and can interact electronically with teachers and students in other countries as part of language, geography, or political studies instruction.

As implausible as this scenario sounds, it is already becoming reality. Parents who home-school increasingly use technology to access instructional materials. Students in remote areas of Canada and Australia, hundreds of miles from a school building, attend school by logging onto their computers. Technology literally allows a high-school student in rural Kansas to take a course online from a teacher in another town.

The question, perhaps, is not whether it is possible that schools will cease to exist, but how virtual schools will grow and to what extent. No one knows, but it raises some interesting issues about how much to invest in physical structures, what kind of life expectancy they should have, and whether the future emphasis needs to be on schools as traditional learning environments or schools as production and broadcast centers. It also raises a question about the fundamental purpose of schooling. If technology consumes much of the instructional delivery of the future, who or what will assume responsibility for the socialization process that schools have traditionally been held accountable for?

**How Can These Ten Trends Facilitate the Planning of Good Schools?**

Trends are defined as lines of direction or movement. Some trends may prevail; others, may not. What is important is not so much an awareness of a particular trend, but knowing what trends will likely affect a particular school or district. Trends vary in different parts of the country and among communities in the same area. Imagine two contiguous school systems where schools might look quite different. In one community, constituents may decide that small neighborhood schools are necessary and therefore worthy of the fundraising needed to build them. In the other, taxpayer reluctance to support schools may mandate that schools be larger.

The key to providing school facilities that meet current and future needs in a given community is to constantly scan the environment, communicate regularly with educators, the community, businesses and policy makers, and stay aware of current educational, design, and environmental issues. Otherwise, reliance on "It's always worked in the past," or on "That's how it has always been done" may well result in the waste of limited capital dollars, dissatisfaction in the community, and reduced opportunities to optimize instruction and educational outcomes.

A basic element of effective planning for the 21st century must be "thinking beyond today." Specific questions must be asked on an ongoing basis: "What is emerging in educational practice that may affect school design tomorrow? What is happening with the demographic composition of my community that may change how education must be delivered or what taxpayers are willing to support? Does quality research exist that indicates education can be delivered in a more efficient, effective manner?" Only if such questions are addressed can we hope that the school facilities of tomorrow will adequately support the educational programs of the day.

## References

Achilles, Charles M. 1996. Students achieve more in smaller classes. *Educational Leadership* 53, no. 5: 76–77.

Biddle, B. J. & Berliner, D. C. 2002. Small class size and its effects. *Educational Leadership* 59, no. 5: 12–22.

Bohrnstedt, George W., and Brian M. Stecher (eds.). 2002. *What we have learned about class size reduction in California.* Sacramento: California Department of Education. *http://www.classize.org/techreport/CSR_Capstone_prepub.pdf*

Butin, Dan. 2000. *Classrooms.* Washington, D.C.: National Clearinghouse for Educational Facilities. *http://www.edfacilities.org/pubs/classrooms.pdf*

Clark, Tom. 2001. *Virtual schools: Trends and issues.* Phoenix, Ariz.: WestEd/Distance Learning Resource Network.

Chan, T. C. 1996. *Environmental impact on student learning.* Valdosta, Ga.: Valdosta State College.

Cotton, Kathleen. 2001. New small learning communities: Findings from recent literature. Portland, Ore.: Northwest Regional Educational Laboratory. *http://www.nwrel.org/scpd/sirs/nslc.pdf*

Lackney, Jeffery A. 1999. *Reading a school building like a book: The influence of the physical school setting on learning and literacy.* Jackson, Miss.: Educational Design Institute, Mississippi State University.

Nathan, Joe. 2002. A charter school decade. *Education Week* 21, no. 38: 32, 35. *http://www.edweek.org/ew/ew_printstory.cfm?slug=38nathan.h21*

Northwest Educational Technology Consortium. 2002. Virtual schools: What do educational leaders need to know? Paper presented at the 2002 NCCE Conference, Seattle, Wash. *http://www.netc.org/presentations/ncce/2002/nccenotes.pdf*

Raywid, Mary Anne. 1998. Small schools: A reform that works. *Educational Leadership* 55, no. 4: 34–39.

Renchler, Ron. 2000. Grade span. *ERIC Research Roundup* 16, no. 3. *http://eric.uoregon.edu/publications/roundup/S00.html*

Simon, Eric J. 2001. *Electronic books: A pilot study of student e-reading habits.* Kent, Ohio: Institute for Cyber-Information. *http://www.futureprint.kent.edu/articles/simon01.htm*

Vander Ark, Tom. 2002. The case for small high schools. *Educational Leadership* 59, no. 5: 55–59.

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## Additional Information

See the NCEF resource lists *Schools for the Future, School Size,* and *Grade Configuration* online at *http://www.edfacilities.org/rl/*

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